San Francisco = Airport Commission

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CO INTERNATIONAL AIRPORT
AIRFIELD RECONFIGURATION PROJECT
EIR/EIS ENVIRONMENTAL REVIEW PROCESS

STATUS SUMMARY 1 - MARCH 2000

Additional public input is requested on the alternatives to be considered in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for SFO's airfield reconfiguration project. The text and illustrations included herein are intended to summarize the current status of the EIR/EIS, and will be explained further at public information workshops scheduled for the end of April and beginning of May 2000. Dates and locations are listed below.

DOCUMENTS DEPT.

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• 7:00 PM - 9:00 PM	April 24	San Rafael (Marin Civic Center)
• 7:00 PM - 9:00 PM	April 26	San Francisco City Hall (Light Court)
• 12:00 Noon - 2:00 PM	April 29	Palo Alto (Lucie Stern Community Center)
• 7:00 PM - 9:00 PM	May 1	Millbrae (Green Hills Elementary School Gymnasium)
	/ 3	Oakland (Lakeside Park Garden Center Vista Room)

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San Francisco, CA 94102

REFERENCE BOOK

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rkshops to learn more, and provide any additional suggestions regarding the environmental figuration project. Written comments regarding the environmental assessment, including ntact persons listed at the end of this summary by no later than May 19, 2000.

(SFO) proposes to reconfigure its airfield, and requires approval from the Federal Aviation Francisco Planning Department's Office of Environmental Review (OER) and the FAA are rnia Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) eport/Environmental Impact Statement (EIR/EIS). The EIR must be complete before the ng a reconfiguration alternative, and the EIS must be complete before the FAA can consider that incorporates the proposed reconfiguration and any SFO requests for federal funding or e reconfiguration.

ct review and approval include the U.S. Army Corps of Engineers (Corps), the U.S. Fish and nvironmental Protection Agency (EPA). These agencies have agreed to be "cooperating preparation of the EIS. Ultimately, if an alternative is selected that requires dredging and/or s for the project before SFO can proceed. Other agencies that will be consulted during ial effects of the proposed project include the National Marine Fisheries Service and the eservation Officer.

will be asked to approve permits for or review the project before it can be implemented (i.e., owing: Bay Conservation and Development Commission (BCDC), California State Water o Bay Regional Water Quality Control Board (RWQCB), California Department of Fish and Game, State Lands Commission, Bay Area Air Quality Management District, and California Department of Transportation (Caltrans).

Additional agencies that may be consulted with or requested to take approval actions regarding the project, including potential borrow, dredge material disposal, and mitigation sites (see pp. 9 - 10), include the following:

- U.S. Coast Guard
- California Coastal Commission
- San Mateo County
- Solano County
- Santa Clara County
- San Francisco
- ard
- as
- alo Alto
- City of Foster City
- City of Burlingame
- City of San Bruno
- City of San Rafael
- City of Vallejo
- City of Berkeley
- City of Fremont
- City of Mountain View
- City of Sunnyvale
- Monterey Bay National Marine Sanctuary
- U.S. Department of the Interior
- California Department of Resources
- Alameda County
- Sonoma County
- Contra Costa County
- Marin County
- City of Oakland
- City of Newark
- City of Palo Alto
- City of Redwood City
- City of San Mateo
- City of San Jose
- City of Millbrae
- City of Brisbane
- City of Novato
- City of Richmond
- City of Corte Madera
- City of Menlo Park
- Port of Oakland

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SAN FRANCISCO INTERNATIONAL AIRPORT
AIRFIELD RECONFIGURATION PROJECT
EIR/EIS ENVIRONMENTAL REVIEW PROCESS

STATUS SUMMARY 1 - MARCH 2000

Additional public input is requested on the alternatives to be considered in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for SFO's airfield reconfiguration project. The text and illustrations included herein are intended to summarize the current status of the EIR/EIS, and will be explained further at public information workshops scheduled for the end of April and beginning of May 2000. Dates and locations are listed below.

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• 7:00 PM - 9:00 PM	May 3	Oakland (Lakeside Park Garden Center Vista Room)

Please attend the public information workshops to learn more, and provide any additional suggestions regarding the environmental analysis of the proposed airfield reconfiguration project. Written comments regarding the environmental assessment, including alternatives, may also be sent to the contact persons listed at the end of this summary by no later than May 19, 2000.

AGENCIES INVOLVED

The San Francisco International Airport (SFO) proposes to reconfigure its airfield, and requires approval from the Federal Aviation Administration (FAA) to do so. The San Francisco Planning Department's Office of Environmental Review (OER) and the FAA are acting as lead agencies under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) to prepare an Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The EIR must be complete before the Airport Commission can consider adopting a reconfiguration alternative, and the EIS must be complete before the FAA can consider approval of a revised airport layout plan that incorporates the proposed reconfiguration and any SFO requests for federal funding or passenger facility charges to finance the reconfiguration.

Other Federal agencies involved in project review and approval include the U.S. Army Corps of Engineers (Corps), the U.S. Fish and Wildlife Service (FWS), and the U.S. Environmental Protection Agency (EPA). These agencies have agreed to be "cooperating agencies" with the FAA under NEPA for preparation of the EIS. Ultimately, if an alternative is selected that requires dredging and/or Bay fill, the Corps must approve permits for the project before SFO can proceed. Other agencies that will be consulted during preparation of the EIS regarding potential effects of the proposed project include the National Marine Fisheries Service and the Office of the California State Historic Preservation Officer.

State, regional, and local agencies who will be asked to approve permits for or review the project before it can be implemented (i.e., Responsible Agencies) include the following: Bay Conservation and Development Commission (BCDC), California State Water Resources Control Board, San Francisco Bay Regional Water Quality Control Board (RWQCB), California Department of Fish and Game, State Lands Commission, Bay Area Air Quality Management District, and California Department of Transportation (Caltrans).

Additional agencies that may be consulted with or requested to take approval actions regarding the project, including potential borrow, dredge material disposal, and mitigation sites (see pp. 9 - 10), include the following:

U.S. Coast Guard
California Coastal Commission
San Mateo County
Solano County
Santa Clara County
Napa County
City of South San Francisco
City of Hayward
City of Milpitas
City of East Palo Alto
City of Foster City
City of Burlingame
City of San Bruno
City of San Rafael
City of Vallejo
City of Berkeley
City of Fremont
City of Mountain View
City of Sunnyvale
Monterey Bay National Marine Sanctuary
U.S. Department of the Interior
California Department of Resources
Alameda County
Sonoma County
Contra Costa County
Marin County
City of Oakland
City of Newark
City of Palo Alto
City of Redwood City
City of San Mateo
City of San Jose
City of Millbrae
City of Brisbane
City of Novato
City of Richmond
City of Corte Madera
City of Menlo Park
Port of Oakland

PROJECT OBJECTIVES AND STATEMENT OF PURPOSE AND NEED

SFO has identified the following primary objectives of their project:

- Reduce existing and future flight delays in all weather conditions
- Reduce human exposure to aircraft noise
- Accommodate existing and anticipated new large aircraft

For purposes of the EIR/EIS, the FAA, OER, and SFO have been working with State and Federal agencies to define a concise statement of the project's "Purpose and Need" as required under NEPA. The statement of purpose is as follows:

The purpose of the project is to reduce existing and projected flight delays and accommodate existing and anticipated aircraft, as well as projected flight demand, thereby achieving efficient airport operations under all weather conditions while addressing the airport's goal of reducing human exposure to noise.

The need for the project has been identified as follows:

- SFO patrons currently experience operational delays during bad weather
- Operational delays are expected to be experienced by SFO patrons in the future during good and bad weather
- Delays at SFO have National Airspace System (NAS) and regional airspace and transportation impacts
- Community concerns over aircraft noise
- Local residents want additional relief from aircraft noise beyond the requirements of California Title 21 and FAA noise guidelines (e.g., residents want the use and enjoyment of outdoor areas within the 65 CNEL zone)
- Future categories of large aircraft that are anticipated at SFO require restrictions on aircraft ground movements or larger separations between taxiways.

EIR/EIS ALTERNATIVE SCREENING PROCESS

Consideration of possible ways to reconfigure the airfield at SFO began in 1990 when the San Francisco Airport Commission undertook a runway reconfiguration study at the request of the Airport/Community Roundtable. The Roundtable is a 21-member group of representatives from communities affected by aircraft noise from SFO, which has as its objective identifying ways to reduce noise. In 1998-99, an SFO feasibility study identified 32 potential airfield reconfiguration alternatives to reduce noise, reduce flight delays, and accommodate new large aircraft. The SFO feasibility study suggested six alternatives for detailed analysis, and ultimately recommended two options for further evaluation. SFO is continuing its planning efforts and expects to select its proposed reconfiguration alternative later this year.

A wide range of potential alternatives to SFOs proposed reconfiguration were suggested by the public and government agencies during the public input or "scoping" period for the EIR/EIS. All of the suggested alternatives and alternative-components (i.e., actions that are not stand-alone alternatives but could be part of an alternative) are being assessed objectively by FAA and OER to determine a reasonable range of feasible alternatives to carry forward into the EIR/EIS analysis. As part of this assessment, the preliminary feasibility of suggested alternatives was initially considered by asking the following questions:

- Could the airport maintain a reasonable level of service during construction of the alternative?
- Would the alternative be technologically feasible to implement within the next 10 years?
- Could the alternative be implemented consistent with Federal and State requirements?
- Is there adequate airspace capacity to safely implement the alternative?

As part of this assessment, OER and FAA are considering how to logically combine the suggested alternatives and alternative-components that passed an initial evaluation of overall feasibility into a set of alternatives that could potentially meet some or all of the project objectives. These alternatives have been further evaluated to eliminate those that are clearly infeasible based on technological or environmental constraints, or which would fail to effectively meet the stated purpose and need for the proposed project.

Alternatives that are under consideration for the EIR/EIS are presented on pages 4 through 8. These include:

- Alternative 1 – No Action
- Alternative 2 – System Management and Technological Enhancements Alternatives
- Runway Reconfiguration Alternatives 3A and 3B (3A is the same as SFO's Alternative A3)
- Runway Reconfiguration Alternative 4 (this is the same as SFO's Alternative BX Refined)
- Runway Reconfiguration Alternative 5 (this is the same as SFO's Alternative F2)

Alternatives which have been considered and eliminated from further detailed study are described on pages 7 and 8, along with reasons for their elimination. Decisions regarding inclusion or elimination of alternatives from the EIR/EIS are subject to change and refinement as more information becomes available. Relevant information includes public and agency comments, forecasts of future air travel demand, and results of preliminary impact assessments and refined planning studies. It should be noted that State and Federal agencies involved in ongoing consultation have not yet concurred with the range of alternatives presented.

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ALTERNATIVE 1 (NO ACTION ALTERNATIVE)

Both CEQA and NEPA require consideration of a No Action Alternative as a basis of comparison with other project alternatives. Under Alternative 1, the No Action Alternative, SFO would continue operating with its current runway system layout, would continue currently planned efforts to enhance the efficiency of airport operations, and would implement certain noise abatement measures. Some of the measures included in this alternative are the following:

- Simultaneous Offset Instrument Aapproach (SOIA) and Precision Runway Monitor (PRM) technologies to reduce arrival delays in certain bad weather conditions
- Enhanced computer programs for air traffic control (Center/TRACON automation system or CTAS) and use of a differential global positioning system called Local Augmentation System (LAAS) to shorten the "in-line" spacing between sequential aircraft
- All FAA approved noise abatement measures identified in SFO's 1983 Noise Compatibility Plan

The current schedule anticipates that the SOIA/PRM technologies will be available at SFO in summer 2001. SOIA/PRM is currently undergoing an FAA environmental analysis for use at SFO. Similarly, CTAS and LAAS technologies would have to be reviewed and certified by the FAA for use. The EIR/EIS will have to make some assumptions regarding the implementation of SOIA/PRM and global positioning system technologies and their effectiveness to reduce delay under the No Action Alternative.

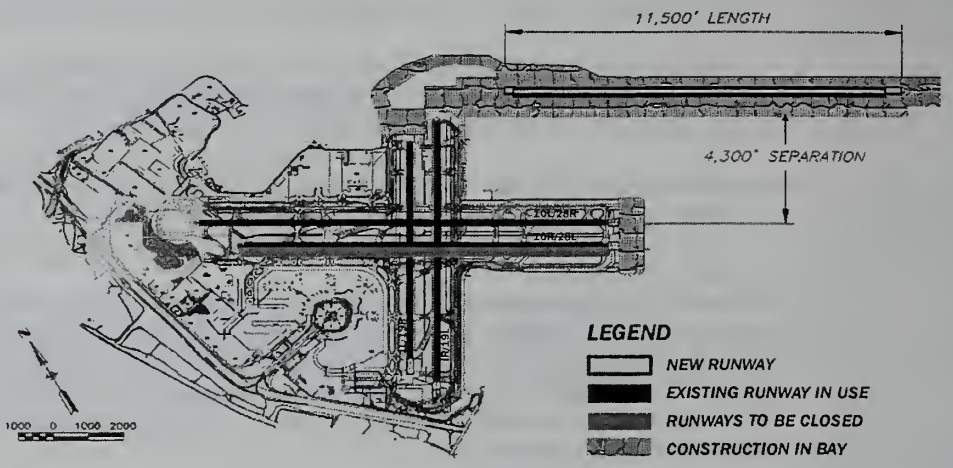
ALTERNATIVE 2 (SYSTEM MANAGEMENT AND TECHNOLOGICAL ENHANCEMENTS ALTERNATIVE)

Under this alternative, SFO would not construct any improvements requiring Bay fill, and would continue operating with its current runway system. Measures to be included in this alternative have not been fully defined and the feasibility, as well as effectiveness, of both individual measures and potential combinations of measures will require detailed analysis. In addition to improvements described under Alternative 1, the No Action Alternative, the following additional measures will be evaluated for inclusion in Alternative 2:

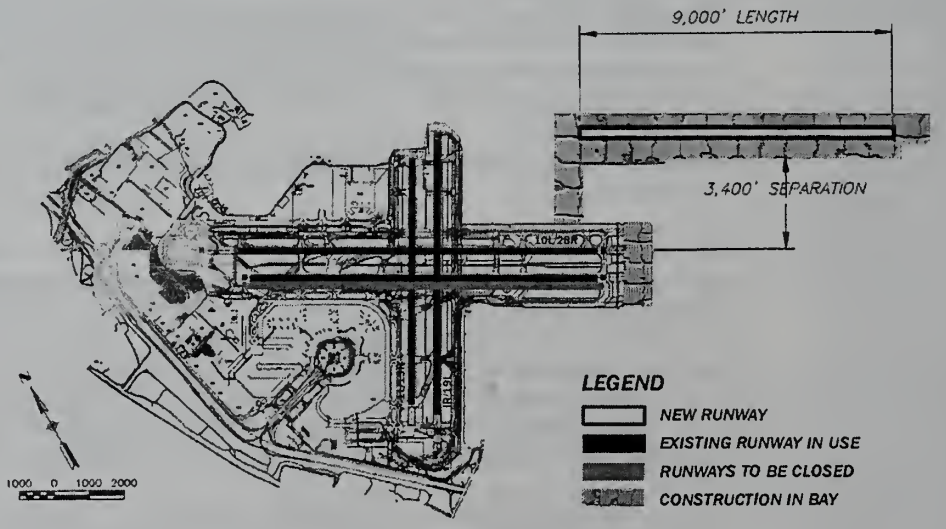
- The ability of SFO to obtain FAA approval of noise and access controls under 14CFR Part 161 to reduce noise and congestion at SFO and the ability of the FAA to implement controls pursuant to their statutory authority (e.g., regulation of high density airports). The effect of these controls on other Bay Area airports needs to be examined.
- Voluntary implementation of access and noise restrictions by the airlines using or potentially using SFO.
- Formation of Joint Powers Board or other regional authority to manage operations and prioritize future investments at Bay Area airports, such that any available capacity that may exist at Oakland and San Jose is utilized as a way to reduce delays and noise at SFO. Key considerations will be the existing and projected future air travel demand and airfield capacity at all Bay Area airports, airspace capacity, the number of connecting flights using SFO and the destinations served, the ability of airlines to determine their own routes and services under Federal law, and potential incentives or disincentives that could be used to encourage airlines and passengers to use one airport rather than another.
- Technological enhancements that aviation experts and the FAA reasonably expect to be available and certified within the next 10 years. The EIR/EIS will have to make some assumptions regarding the implementation and effectiveness of these technologies.
- Additional noise abatement measures, such as additional noise insulation and property acquisition.

RECONFIGURATION ALTERNATIVE 3A AND 3B
(Alternative 3A is the same as SFO's Alternative A3)

Reconfiguration Alternative 3A (SFO Alternative A3) would construct a new 11,500 foot runway 4,300 feet northeast of the centerline of existing Runway 28R to permit two aircraft to land simultaneously during bad weather conditions, and would convert existing Runway 28L/10R to a taxiway. Other airfield and taxiway changes, including new navigational aids and airfield lighting, would be constructed under this alternative for the new Runway 28R, as would an additional emergency response facility. The airport traffic control tower may also need to be relocated, and runway safety areas would be constructed adjacent to existing Runway 19L and 19R.



SFO has suggested that this alternative could be constructed with a 9,000 foot long runway instead of an 11,500 foot long runway if existing Runway 28L were kept in use as a departure-only runway (instead of a taxiway) when wind conditions force SFO into an "All West" condition (all takeoffs and landings on the Runway 28 system), which occurs about 10 percent of the time.



Reconfiguration Alternative 3B is being studied as a variant to Reconfiguration Alternative 3A. The option currently under consideration for inclusion in the EIR/EIS would construct a new 9,000 foot long runway built to Group V aircraft standards approximately 3,400 feet northeast of the existing Runway 28R, and would convert existing Runway 28L to use as a taxiway, except in the "All West Plan" described under 3A, above. This alternative would connect the new runway with the existing airfield further to the southwest than Alternative 3A, and would construct similar airfield and taxiway changes, including new navigational aids, airfield lighting, runway safety areas, and an additional emergencyresponse facility. The airport traffic control tower may also need to be relocated. This alternative could be constructed 3,400 feet from existing Runway 28R (instead of 4,300 feet away) provided the PRM technology described in Alternative 1 allows simultaneous arrivals in bad weather.

The EIR/EIS will consider a wide range of construction techniques for any Bay fill, including fill with rock dike wall, fill with bulkhead wall, use of piles, floating structures, or some combination of these techniques. The precise nature of these construction techniques has not been determined. The potential for combining features of Alternative 2 (i.e., technological or procedural enhancements and additional noise measures) with the reconfiguration alternatives needs to be determined.

The surface area of new Bay fill required under Alternative 3A is estimated at between 429-605 acres, depending on construction methods and taxiway configurations. Fill amounts for a 9,000 foot runway and for Alternative 3B may be less (but are unknown at this time). According to the SFO Runway Feasibility Study, construction of Alternative 3A would reduce the population living within the 65 CNEL noise exposure zone from 10,300 to 8,600 persons. Potential noise benefits of Alternative 3B are expected to be similar to 3A. These numbers will be refined in the EIR/EIS.

This alternative would include habitat mitigation, borrow, and disposal sites as described on pages 9 -10, below.

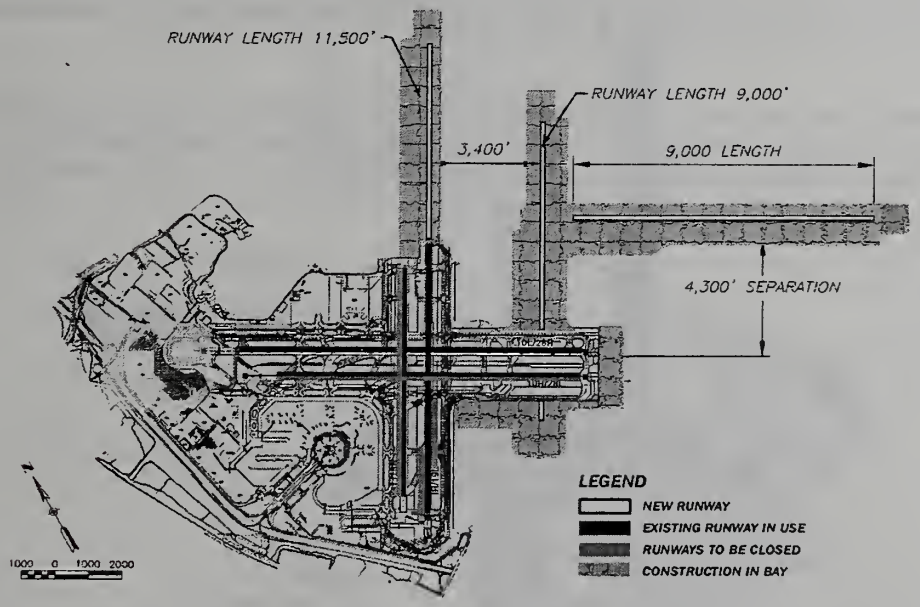
RECONFIGURATION ALTERNATIVE 4

(This aternative is the same as SFO's Alternative BX Refined)

Reconfiguration Alternative 4 (SFO Alternative BX Refined) would construct a new 9,000 foot runway (28R) 4,300 feet northeast of existing Runway 10L/28R to allow two aircraft to land simultaneously during all bad weather conditions and would convert existing Runway 28L for use as a taxiway. Alternative 4 would also extend existing Runway 1R/19L 7,500 feet to the northeast, convert runway 1L/19R to use as a taxiway, and construct a new 9,000 foot Runway 1R 3,400 feet to the southeast of (extended) Runway 1R/19L. Other airfield and taxiway changes, including new taxiways, navigational aids, runway safety areas, and airfield lighting would be constructed under this alternative, along with an additional emergency response facility. The airport traffic control tower may also need to be relocated. A variation of this alternative would keep existing Runway 28L open as a departure-only runway to be used only when wind conditions force SFO into an "All West Plan," as described for Alternative 3, above.

Other issues such as construction techniques, mitigation sites, borrow sites, disposal sites, and application of additional technological and procedural enhancements have not yet been determined.

The surface area of new Bay fill required under this alternative is estimated at between 888 and 1,222 acres, depending on construction methods. According to the SFO Feasibility Study, construction of Alternative 4 would reduce the population living in the 65 CNEL noise exposure zone from 10,300 to 810 persons. These numbers will be refined in the EIR/EIS.



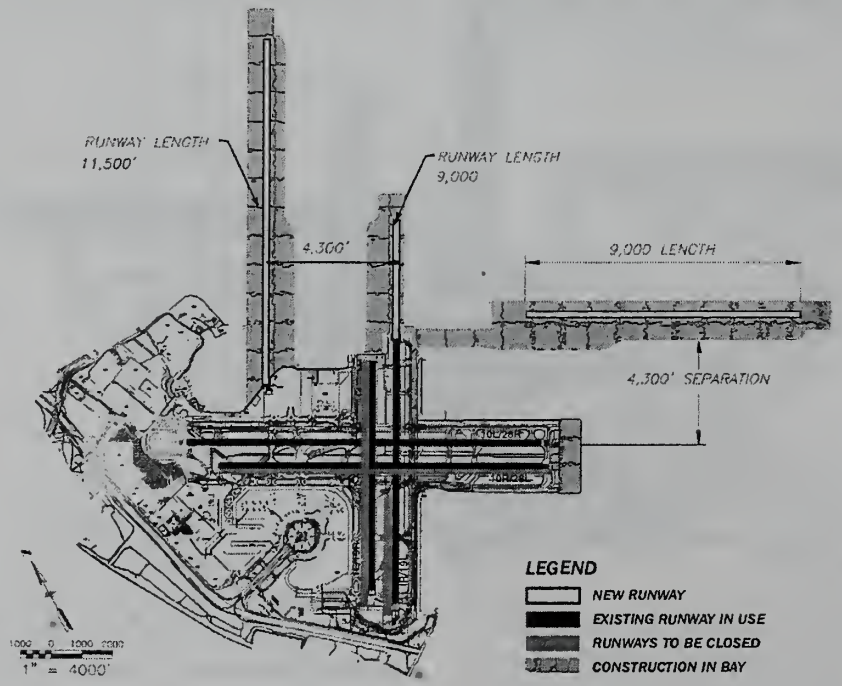
RECONFIGURATION ALTERNATIVE 5

(This alternative is the same as SFO's Alternative F2)

Reconfiguration Alternative 5 (SFO Alternative F2) would construct a new runway 4,300 feet northeast of existing Runway 10L/28R to allow two aircraft to land simultaneously during all bad weather conditions, and would convert existing Runway 28L to use as a taxiway. Alternative 5 would also extend existing Runways 1R/19L by 5,000 feet to the northeast, convert runway 1L/19R for use as a taxiway, and construct a new 11,500 foot runway 4,300 feet northwest of existing Runway 1R/19L. Other airfield and taxiway changes, including new taxiways, runway safety areas, navigational aids, and airfield lighting would be constructed under this alternative, along with an additional emergency response facility. The airport traffic control tower may also need to be relocated. A variation of this alternative would keep existing Runway 28L open as a departure-only runway to be used only when wind conditions force SFO into an "All West Plan," as described for Alternative 3, above.

Other issues such as construction techniques, mitigation sites, borrow sites, disposal sites, and application of technological and procedural enhancements have not yet been determined.

The surface area of new Bay fill required under this alternative is estimated at between 959 and 1,332 acres, depending on construction methods. According to the SFO Runway Feasibility Study, construction of Alternative 5 would result in a reduction of the population living within the 65 CNEL noise exposure zone from 10,300 to 840 persons. These numbers will be refined in the EIR/EIS.



PLANNING DEPARTMENT

City and County of San Francisco 1660 Mission Street, Suite 500 San Francisco, CA 94103-2414

(415) 558-6378 PLANNING COMMISSION FAX: 558-6409 ADMINISTRATION FAX: 558-6426 CURRENT PLANNING/ZONING FAX: 558-6409 LONG RANGE PLANNING FAX: 558-6426

SCH # 99072002

NOTICE OF PREPARATION

To: Responsible Agencies and Interested Parties

From: Planning Department
City and County of San Francisco
Office of Environmental Review
1660 Mission Street, Suite 500
San Francisco, CA 94103-2414

Subject: Notice of Preparation of a Draft Environmental Impact Report (EIR): San Francisco International Airport Airfield Reconfiguration Project (Case No. 1999.403E)

The San Francisco Planning Department is the Lead Agency and is preparing an Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

1999.403E/SAN FRANCISCO AIRPORT AIRFIELD RECONFIGURATION PROJECT EIR

Project Description: San Francisco International Airport (SFO) proposes to reconfigure its runways to address three issues at the airport: (1) reduce existing and projected flight delays under all weather conditions (2) accommodate existing and anticipated aircraft and projected flight demand; (3) reduce human exposure to noise. Some alternatives would require expansion into San Francisco Bay. (Please refer to the attached materials for more details).

This Notice of Preparation is the second notice being distributed to your agency and the public to ensure maximum input now that a preliminary range of alternatives have been identified. We propose to conduct five public informational workshops to solicit comments from the public on the on-going Environmental Impact Report (EIR) preparation process.

Date	Time	Location
April 24	7 - 9 p.m.	San Rafael - Marin Center, Avenue of the Flags
April 26	7 - 9 p.m.	San Francisco - City Hall/North Light Court #1 Dr. Carlton B. Goodlett Place, First Floor
April 29	12:00 - 2 pm	Palo Alto - Lucie Stern Community Center 1305 Middlefield Road
May 1	7 - 9 p.m.	Millbrae - Greenhills Elementary School/Gymnasium 401 Ludeman Lane
May 3	7 - 9 p.m.	Oakland - Lakeside Park Garden Center/Vista Room 666 Bellevue Avenue

In addition to submitting comments at any of the workshops, written comments will be accepted until the close of business on May 19, 2000. Written comments should be sent to: Ms. Hillary Gitelman, Environmental Review Officer, San Francisco Planning Department, 1660 Mission Street, Suite 500, San Francisco, CA 94103-2414.

Hillary E. Gitelman
Environmental Review Officer

Date 3/24/00

TO: **Interested Parties**

RE: **1999.403E - San Francisco International Airport Airfield Reconfiguration Project EIR/EIS - Public Information Workshops**

The San Francisco Planning Department and the Federal Aviation Administration (FAA) in conjunction with San Francisco International Airport (SFO) invite you to attend a public information workshop regarding the on-going preparation of an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for SFO's proposed airfield reconfiguration project. Five public workshops will be held to describe the airfield reconfiguration alternatives preliminarily identified for inclusion in the EIR/EIS and those rejected from further consideration. Preliminary information will also be presented regarding potential borrow and disposal sites and potential mitigation sites. A summary of relevant information is enclosed for your review in advance of the workshops. The workshops are scheduled as follows:

Date	Time	Location
April 24	7 - 9 p.m.	San Rafael - Marin Center, Avenue of the Flags Exhibition Hall, Madrone Room
April 26	7 - 9 p.m.	San Francisco - City Hall/North Light Court #1 Dr. Carlton B. Goodlett Place, First Floor
April 29	12:00 - 2 p.m.	Palo Alto - Lucie Stern Community Center 1305 Middlefield Road
May 1	7 - 9 p.m.	Millbrae - Greenhills Elementary School/Gymnasium 401 Ludeman Lane
May 3	7 - 9 p.m.	Oakland - Lakeside Park Garden Center/Vista Room 666 Bellevue Avenue

All workshops are open to the public and will include a 15-20 minute introduction followed by an "open house" meeting format, where the public is invited to review graphic materials and talk to agency staff and consultants. Written and oral comments will be accepted.

In conjunction with the public workshops, the San Francisco Planning Department is also distributing the enclosed supplemental Notice of Preparation of an EIR, and will be accepting further written comments on the scope of the environmental review and the EIR/EIS alternatives.

Written comments will be accepted until the close of business on May 19, 2000 and should be sent to: Ms. Hillary Gitelman, Environmental Review Officer, San Francisco Planning Department, 1660 Mission Street, Suite 500, San Francisco, CA 94103-2414.

ALTERNATIVES ELIMINATED FROM FURTHER STUDY

Alternative	***Reason for Elimination from the EIR/EIS***
Use Available Capacity at Moffett Field	NASA ownership does not permit commercial aviation and the airfield is designated for Federal use only; because of airspace conflicts, use of Moffett would substantially increase delays or constrain the use of San Jose and Palo Alto airports; infrastructure at Moffett Field would not currently support commercial aviation; and local communities are opposed to any commercial use of Moffett Field, which would result in new impacts to affected communities.
Upland" reconfiguration alternatives which would place a new parallel runway on existing fill inland of the existing 28L runway	Any upland alternative would conflict with FAA's missed approach requirements (which establish airspace envelopes that cannot be encroached by landforms or man-made structures), would result in substantial increases in noise, and would have substantial environmental and economic impacts due to the displacement of existing land uses. SFO property west of the Bayshore Freeway (US 101) includes wetlands and endangered species.
"Inshore" reconfiguration alternatives which would place a new parallel runway in shallow water southwest of existing runway 28L	Any inshore alternative would conflict with FAA's missed approach requirements and would have substantial environmental impacts, including noise increases in surrounding communities.
Other reconfiguration alternatives (i.e. besides A3, BX Refined, and F2) from SFOs feasibility study.	At present, other reconfiguration alternatives have been rejected in favor of Alternatives 3A, Alternative 4, and Alternative 5 (A3, BX Refined, and F2) because they would have greater impacts and/or would be no more effective in meeting SFO's objectives. Thus, the proposed EIR/EIS alternatives reflect a range of possible reconfiguration options; however, additional reconfiguration alternatives (such as SFO's original Alternative BX) may be reinstated and included in the EIR/EIS based on community input or airport planning studies.
Construct a New North Bay Airport	If such an airport were built, delays at SFO would decrease very slowly over time as new flights were added and some airlines and passengers begin to use the new airport. Past studies estimate that a new North Bay airport would only divert enough travel demand from SFO to reduce delay at that airport by 3-12 percent in bad weather conditions by 2020. Current market conditions provide only limited demand for commercial flights at Santa Rosa Airport, which service from a new North Bay Airport would duplicate. No public agency sponsor for a new airport has been identified, and a new airport would have environmental impacts that would need to be addressed.

Alternative	*Reason for Elimination from the EIR/EIS*
Expand Airfield Capacity at San Jose Airport	Substantial property acquisition would be required for this alternative, along with relocation of regional transportation facilities (e.g., I-880 and US 101). There would be considerable noise and other impacts with this alternative and there is not strong community support for such an expansion.
Use Travis Air Force Base to accomodate commercial air travel demands	The FAA and the Department of the Defense do not currently support intensive civilian use of Travis, and a joint use agreement would be difficult to obtain. Existing infrastructure at Travis would not currently support civilian use. Current market conditions provide only limited demand for commercial flights at Santa Rosa Airport, which service from Travis would duplicate. Past studies estimate a reduction of delays at SFO of 3-12 percent in bad weather conditions by 2020 under this alternative. Also, civilian use of Travis would result in new impacts to affected communities.
Construct a New Regional Airport	No location or public agency sponsor for a new regional airport has been identified, and a new airport would have substantial impacts that would need to be addressed. Additional infrastructure would also have to be constructed. The only way to ensure that airlines would serve the new airport would be to close existing Bay Area airports at SFO, OAK, and SJC, which would have substantial economic impacts.
Use available capacity at Central Valley airports	Passengers and airlines would be reluctant to use an airport located 60 to 100 miles away from central Bay Area destinations, and it is unlikely that any noticeable reduction in delay or noise would occur at SFO as a result. Additional infrastructure would have to be constructed at Central Valley airports, and surrounding communities would experience impacts from increased activities.
Rely on the use of high-speed rail	Based on available projections, implementation of high-speed rail would not result in substantial delay or noise reductions at SFO. Past studies have estimated potential delay reductions of 2-7 percent at SFO. In addition, it is estimated to cost between $21 and $29 billion. The EIR/EIS will discuss potential benefits of high-speed rail as part of the future baseline condition.
Promote telecommuting as a way to reduce air travel demand	There is no evidence that telecommuting reduces air travel demand, or would significantly reduce delays or noise at SFO. The EIR/EIS will discuss potential benefits of telecommuting as part of the future baseline condition.

Note: Other suggestions advanced during the EIR/EIS scoping period, such as using potential available capacity at Oakland Airport, using pile-supported or floating runways, etc., are reflected in the range of alternatives currently identified for inclusion in the EIR/EIS. Alternatives selected for analysis and alternatives eliminated from further study are subject to change or refinement as additional information becomes available.

POTENTIAL BORROW AND DISPOSAL SITES

SFO consultants are conducting a comprehensive study of potential sources of fill materials, and potential sites for disposal of materials dredged from around the airport to permit construction of reconfiguration alternatives. Sites currently being considered are located in the Bay, at the Bay entrance, and out of state, as indicated below.

Borrow Sites Being Evaluated:

- Point Knox
- Presidio Shoals
- Ship Channel (SF Bay entrance channel bar)
- East Bay Shoals
- Columbia River (existing Corps of Engineers site)
- Vancouver, BC (existing borrow site)

Disposal Sites Being Evaluated:

- SF-DODS (Ocean Disposal)
- North Bay mitigation sites (not yet identified)
- South Bay mitigation sites (not yet identified)
- Hamilton (Marin County)
- Montezuma (Solano County)

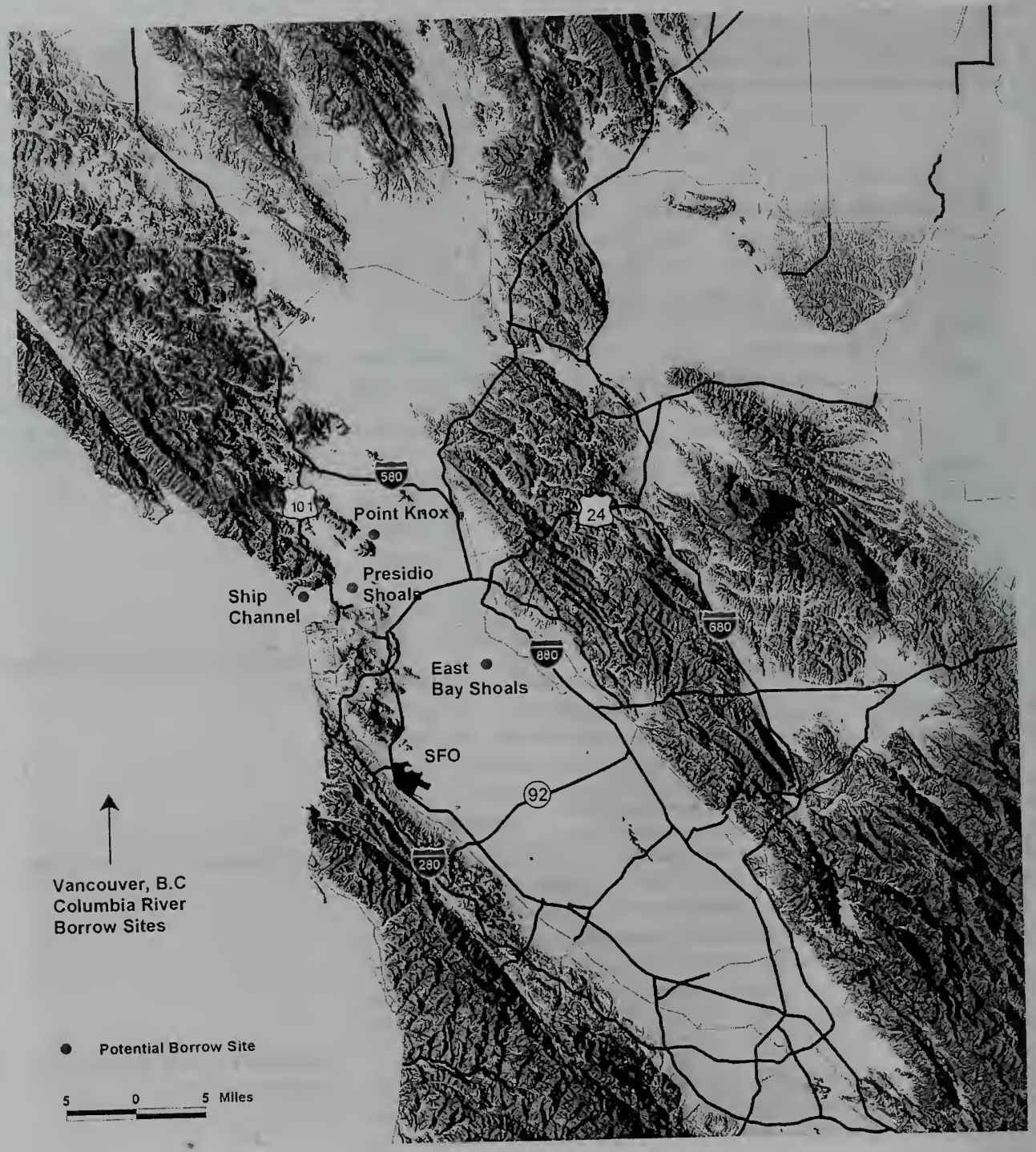
SFO will continue their evaluation of these potential sites, and recommend a combination of these – and potentially other sites – as their preferred borrow and disposal sites for analysis in the EIR/EIS. The EIR/EIS may consider potential modifications to SFO's recommendations in order to reduce potential environmental impacts, possibly including the consideration of sites that SFO may otherwise have eliminated.

POTENTIAL MITIGATION SITES

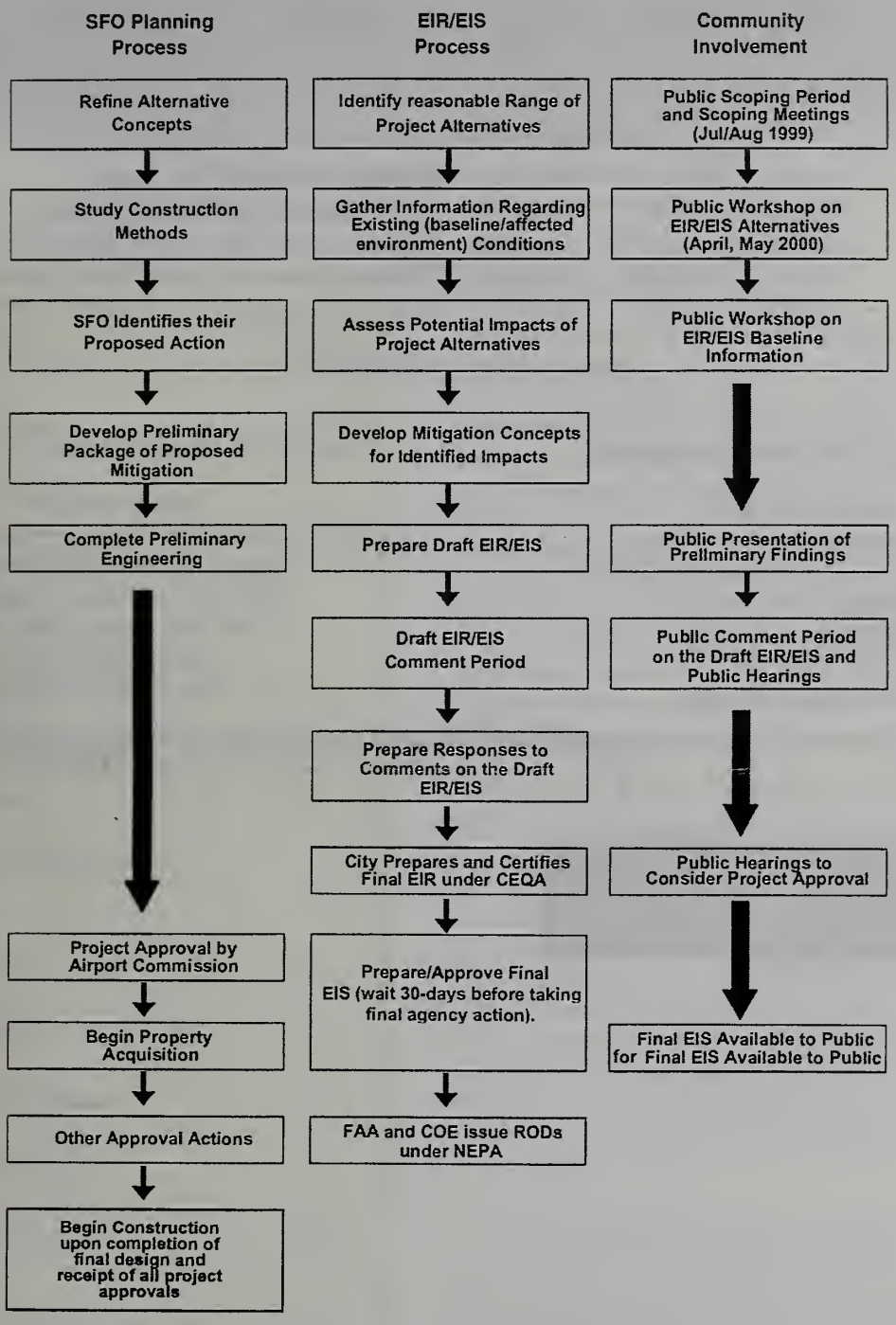
If an alternative is selected which involves Bay fill, compensation will be required for unavoidable impacts to regulatory/jurisdictional resources to comply with the Federal Clean Water Act and the McAteer Petris Act as regulated by the Corps, EPA, BCDC, and RWQCB. Mitigation requirements may be extensive and may include multiple resource types and locations. SFO is currently assessing the over 100 sites identified in the 1998-99 SFO Runway Reconfiguration Feasibility Study and other sites subsequently identified. This assessment is based largely on the 1999 report, *Baylands Ecosystem Habitat Goals*. Additional work is underway to assess selected mitigation sites for the environmental analysis and to prepare mitigation plans for submittal with any permit applications. At the present time, sites being considered for possible habitat mitigation are located in all nine Bay Area counties.

The EIR/EIS will include an assessment of SFO's proposal for habitat mitigation, and may also consider modifications to SFO's proposal and other mitigation necessary to reduce or eliminate significant project environmental impacts to the extent feasible.

POTENTIAL BORROW SITES



SFO International Airport Runway Reconfiguration Project
EIR/EIS Environmental Review Process


SFO Planning Process
EIR/EIS Process
Community Involvement
Refine Alternative Concepts
Identify reasonable Range of Project Alternatives
Public Scoping Period and Scoping Meetings (Jul/Aug 1999)
Study Construction Methods
Gather Information Regarding Existing (baseline/affected environment) Conditions
Public Workshop on EIR/EIS Alternatives (April, May 2000)
SFO Identifies their Proposed Action
Assess Potential Impacts of Project Alternatives
Public Workshop on EIR/EIS Baseline Information
Develop Preliminary Package of Proposed Mitigation
Develop Mitigation Concepts for Identified Impacts
Complete Preliminary Engineering
Prepare Draft EIR/EIS
Public Presentation of Preliminary Findings
Draft EIR/EIS Comment Period
Public Comment Period on the Draft EIR/EIS and Public Hearings
Prepare Responses to Comments on the Draft EIR/EIS
City Prepares and Certifies Final EIR under CEQA
Public Hearings to Consider Project Approval
Project Approval by Airport Commission
Prepare/Approve Final EIS (wait 30-days before taking final agency action).
Begin Property Acquisition
Final EIS Available to Public for Final EIS Available to Public
Other Approval Actions
FAA and COE issue RODs under NEPA
Begin Construction upon completion of final design and receipt of all project approvals

SAN FRANCISCO INTERNATIONAL AIRPORT
AIRFIELD RECONFIGURATION PROJECT
EIR/EIS ENVIRONMENTAL REVIEW PROCESS

PUBLIC INFORMATION WORKSHOP SCHEDULE

• 7:00 PM - 9:00 PM	April 24	San Rafael, Marin Civic Center
• 7:00 PM - 9:00 PM	April 26	San Francisco, City Hall Light Court
• 12:00 Noon - 2:00 PM	April 29	Palo Alto, Lucie Stern Community Center
• 7:00 PM - 9:00 PM	May 1	Millbrae, Green Hills Elementary School Gymnasium
• 7:00 PM - 9:00 PM	May 3	Oakland, Lakeside Park Garden Center

FOR FURTHER INFORMATION

FEDERAL AVIATION ADMINISTRATION

Camille Garibaldi
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San Francisco Airports District Office
831 Mitten Road, Room 210
Burlingame, CA 94010
(650)876-2927
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City and County of San Francisco Planning Department
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SAN FRANCISCO INTERNATIONAL AIRPORT
AIRFIELD RECONSTRUCTION PROJECT
EIR/EIS ENVIRONMENTAL REVIEW PROCESS

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San Francisco
Airport Commission

SFO RUNWAY RECONFIGURATION PROGRAM EIR/EIS Environmental Review Process

Status Summary 2 - November 2000

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INTRODUCTION

San Francisco International Airport (SFO) proposes to reconfigure its airfield, and requires approval from the Federal Aviation Administration (FAA) to do so. The San Francisco Planning Department's Office of Environmental Review (OER) and the FAA are acting as lead agencies under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), respectively, to prepare an Environmental Impact Report/ Environmental Impact Statement (EIR/EIS). The EIR must be complete before the Airport Commission can consider adopting a reconfiguration alternative. The EIS must be complete before the FAA can consider approval of a revised airport layout plan that incorporates the proposed reconfiguration or any SFO requests for federal funding or passenger facility charges to finance the reconfiguration.

As part of their efforts in preparing the EIR/EIS, the OER, FAA, and SFO meet monthly with representatives of other agencies involved in project review and approval. These agencies include the U.S. Army Corps of Engineers (Corps), the Bay Conservation and Development Commission (BCDC), the U.S. Environmental Protection Agency (EPA), the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), and the San Francisco Bay Regional Water Quality Control Board (RWQCB). Some of these agencies will use information provided by the EIR/EIS in making their decisions regarding SFO's requests for permits or other approval actions. No approvals may be granted until appropriate environmental reviews are complete.

This status summary provides an update on OER, FAA, and SFO activities with regard to the EIR/EIS since the Status Summary 1 of March 2000 and the public meetings held in April and May 2000. This summary includes detailed information about the scope of ongoing investigations regarding potential project impacts on Bay hydrology and water quality and on natural resources that depend on the Bay. Future summaries will provide similar detail regarding the scope and the status of other ongoing investigations (for example, noise and air quality analyses).

DOCUMENTS DEPT.

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WE'VE BEEN BUSY

Since March, project alternatives have been refined through planning studies conducted by SFO and the alternatives review process conducted by the FAA and OER. SFO planning studies are providing estimates of the ability of each project alternative to improve existing and future SFO airfield operations. FAA and OER's alternatives review process has focussed on the ability of each alternative to meet the project's purpose and need. The purpose of the project is to reduce existing and projected flight delays and accommodate existing and anticipated aircraft, as well as projected flight demand, thereby achieving efficient airport operations under all weather conditions while addressing SFO's goal of reducing human exposure to noise. All of the alternatives currently planned for detailed analysis in the EIR/EIS are described in the next section of this summary.

The FAA, OER, and their consultants have initiated studies for the EIR/EIS in many environmental issue areas. To date, these studies have largely focussed on the collection of baseline environmental data where such information does not exist in the literature or resource agency files. Studies have also focussed on the development of impact assessment methodologies including computer models to predict possible changes in the physical environment with implementation of project alternatives. This status summary discusses progress on the environmental studies being conducted for hydrology, water quality, and biological resources.

In April 2000, SFO retained five teams of designers and contractors to develop design concepts and feasible construction techniques for the runway platforms that would be required for any of the "build" runway reconfiguration alternatives. The teams submitted their plans to SFO in July 2000. Airport staff and a Blue Ribbon Panel of independent engineering experts are presently evaluating the submittals. All of the plans propose fill, piles, or a combination of fill and piles for construction of the runway platform or platforms. SFO is likely to combine the best ideas from each of the design and construction submittals to develop a preferred construction procedure for the runway platform or platforms.

This summer was also an active one for the Regional Airport Planning Committee (RAPC). RAPC is the committee of the Metropolitan Transportation Commission (MTC) responsible for coordinating airport planning for the San Francisco Bay Area. This summer, RAPC completed its update of the 1994 Regional Airport System Plan (RASP), and in September published its assessment of future aviation growth in the Bay Area and alternatives for serving that growth. The RASP 2000 Update will be subsequently incorporated into MTC's Regional Transportation Plan as the airport element of that plan.

UPDATE ON EIR/EIS ALTERNATIVES

The FAA and OER have evaluated a wide range of alternatives to the proposed project including other modes of transportation, new commercial airports, use of other existing commercial airports, commercial use of Federal and military airfields, systems management, technological solutions, and additional runway reconfigurations. This evaluation resulted in some refinement of the alternatives proposed for inclusion in the EIR/EIS.

Specifically, the alternative identified in March 2000 as Alternative 3B has been eliminated from further consideration because it would be similar to Alternative A3, which will be included in the EIR/EIS, but Alternative 3B would have greater operational limitations. Also, at the request of agency representatives, an alternative known as BX-2 was included for consideration. This alternative, which is described further below, is expecte to represent a middle ground (in terms of impacts and benefits) betwee Alternative A3 on one side and Alternatives BX Refined and F2 on th other side.

The six alternatives currently being considered for detailed evaluation the EIR/EIS are presented below.

Alternative 1: No Action/No Project Alternative

NEPA and CEQA require analysis of the No Action/No Proje Alternative. This alternative will form a basis of comparison with othe EIR/EIS alternatives. The No Action/No Project Alternative does nc include reconfiguration of the SFO airfield. This alternative include reasonably foreseeable planned and programmed technologic improvements (e.g., Precision Runway Monitor radar) with separate an independent utility from the current project that would occur even if th proposed airfield layout changes do not.

At the current time, it is assumed that implementation and use of Simultaneous Offset Instrumentation Approach/Precision Runwa Monitoring (SOIA/PRM) system will occur at SFO regardless of whethe the reconfiguration project proceeds, and thus this procedure an technology will be included in the No Action/No Project Alternative an all other alternatives, as appropriate. The FAA is currently evaluatir implementation of SOIA/PRM at SFO as a "stand alone" project in a Environmental Assessment pursuant to NEPA. Accordingly, the FAA ha not made a final decision regarding use of SOIA/PRM at SFO. Shoul FAA determine that SOIA/PRM will *not* be implemented there, th procedure/technology will not be included in the No Action Alternativ but would be considered for inclusion in Alternative Two (Systen Management) instead.

Alternative 2: Systems Management Alternative

The Systems Management Alternative has been the subject of intensiv study by FAA and OER to determine its component parts. Californ Senate Bill 1562 (SB 1562) also refers to components of this alternativ Both technologies and systems management techniques have bee considered.

Potential future technological enhancements that could be feasible ar effective at reducing delays and/or noise at SFO within the time frame the project will be incorporated into the No Action Alternative and other alternatives, not just in Alternative Two. The list of feasible ar effective technologies includes SOIA/PRM, as noted under the No Actic Alternative above, and may also include other technologies such as Glob Positioning System, Wide Area Augmentation System, Local Are Augmentation System, and Traffic Management Advisor. Other than the technologies, FAA has not identified any potential technologies for inclusic in Alternative Two that would be both effective in achieving the proje objectives, and feasible to implement within the next 10 to 15 years. Ne and emerging technologies that have been studied for this alternative a described in the accompanying table.

A range of potential systems management techniques was studied f this alternative. These techniques ranged from strict airport acce

estrictions, such as implementation of slot controls or other reductions operational capacity at SFO, to less direct methods for controlling emand, such as cooperative marketing programs.

At present, FAA has determined that Alternative Two does not meet ne technological, feasibility, and legal constraints that would make lternative Two likely. Notwithstanding the FAA's analysis, OER is ommitted to considering some version of Alternative Two from a CEQA perspective in the EIR. OER will define its CEQA-only Alternative Two as a combination of the components specified in SB 1562, which are joint operation of Bay Area airports and the use of high speed rail or ferries to reduce travel times between SFO and Oakland airport, as well as establishment of slot controls at SFO. Slot controls would restrict the number of flight arrivals per hour at SFO, with different limits for nighttime and daytime hours.

NEW AND EMERGING TECHNOLOGIES FOR AIR NAVIGATION AND TRAFFIC CONTROL STUDIED FOR THE EIR/EIS

Precision Runway Monitor (PRM). A high-update (every second) radar unit and high-resolution color monitor. The radar allows air traffic controllers to monitor air traffic more precisely than existing radar systems. The monitor contains automatic alerts that warn the controller if aircraft are about to stray or are straying from assigned airspace. PRM has the potential to enhance capacity and reduce delay at SFO under certain weather conditions.

Simultaneous Offset Instrument Approach (SOIA). An approach procedure requiring the use of PRM that allows dual simultaneous approaches on closely spaced runways when visibility is approximately five miles and cloud cover is in the range of 1,600 to 3,500 feet above the ground. SOIA/PRM may enhance aircraft arrival rates at SFO under these weather conditions.

Global Positioning System (GPS). A satellite-based navigation system that is the cornerstone of future navigation systems and procedures being developed by the FAA. GPS will replace the existing ground-based navigation system now in use for commercial aircraft. GPS, by itself, will not provide any capacity-related benefits to operations at SFO; however, it is a critical component of new navigation systems and procedures that might provide capacity improvements in the future.

Wide Area Augmentation System (WAAS). A signal augmentation system for GPS designed for wide area coverage around the United States. The GPS signal suffers potential degradations that affect its accuracy, integrity, and stability for use in aircraft navigation. WAAS would upgrade the signal to accommodate enroute navigation between cities. WAAS will not provide capacity increases at SFO.

Local Area Augmentation System (LAAS). This is also a GPS signal augmentation system. It is designed to provide signal correction for a local geographic area and is intended to allow for precision instrument approaches at airports. This capability is currently provided at some airports, such as SFO, by a ground-based navigation system. By itself, LAAS will not provide capacity increases at SFO.

Required Navigation Performance (RNP). RNP is a set of navigation procedures rather than a navigation system. These navigation procedures stipulate the required accuracy and integrity of system components required to fly an RNP instrument approach. To fly certain procedures, an aircraft must contain certified equipment and be flown by properly trained flight crews. RNP procedures are designed to provide proper separation of aircraft from terrain and stationary objects, not separation from other aircraft approaching or departing closely spaced runways similar to those at SFO. Therefore, RNP procedures are not applicable to the causes of delay at SFO.

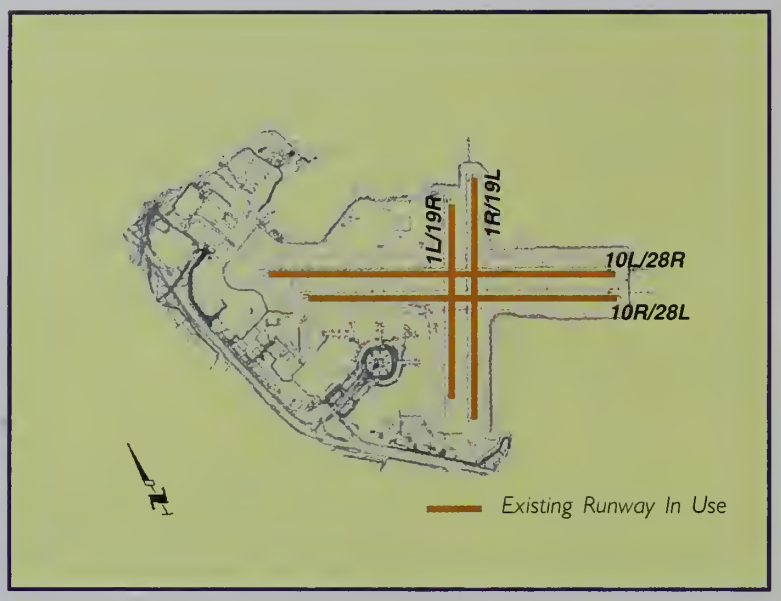
Automated Dependent Surveillance (ADS-B). Surveillance radar for aircraft cockpits that would detect and display the position, speed, and direction of flight of other aircraft equipped with ADS-B. This system would provide pilots with an awareness of other aircraft around them. Pilots currently rely on air traffic control for this information. ADS-B, by itself, would not provide capacity improvements, but is a key element for other navigation concepts such as Airborne Information for Lateral Spacing, discussed below.

Airborne Information for Lateral Spacing (AILS). This is an airborne system concept requiring GPS, LAAS, and ADS-B that would enable pilots to monitor nearby traffic and determine whether course deviations are occurring and corrective action is necessary. NASA's AILS research goal is to determine, test, and verify the minimum implementation of AILS necessary to allow independent instrument approaches under Instrument Flight Rules to runways spaced 2,500 feet apart. A secondary goal is to research the possibility of independent instrument approaches at even closer spaced runways. No research has been conducted on AILS at a runway separation of 750 feet. If determined feasible, its implementation would be beyond the 2020 timeframe.

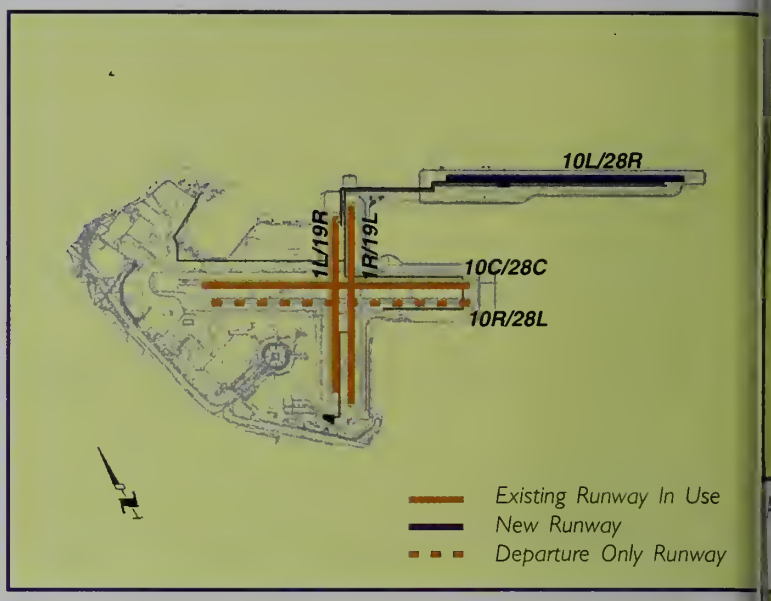
Aircraft Vortex Spacing System (AVOSS). A set of sensors that detect actual weather conditions and wake vortex behavior, and transmit this information to air traffic controllers. The objective of the AVOSS system is to enable a reduction in aircraft separation rules (lateral and in-trail) during periods when wake vortex behavior is not a limiting factor in aircraft approaches. Research to date using AVOSS has been associated with wake vortex behavior of aircraft in-trail on one runway system. No research has been conducted on wake vortex behavior of aircraft making dual simultaneous approaches on closely spaced parallel runways. Therefore, the FAA does not have a current program for its implementation and it is speculative to assume that AVOSS would reduce the separation requirements between parallel aircraft arrival streams.

Traffic Management Advisor (TMA). Software that provides enroute controllers automation tools to manage the flow of traffic from a center into selected major airports. TMA provides optimized schedules and sequences for managing arriving aircraft. It has been selected by the FAA as the future automation system for terminal areas. Actual capacity benefits that would accrue to SFO will not be known until it is installed and used in the Oakland Center air traffic control facility. TMA is currently scheduled to be installed at the Oakland Center in Fall 2001.

Final Approach Spacing Tool (FAST). Software that provides advisories to controllers for efficient sequencing and handling of traffic within the terminal airspace. FAST is being developed in stages. Passive FAST (pFAST) generates optimal proposed sequences, schedules, and runway assignments for controller's use within TRACON airspace. Active FAST (aFAST) will add speed and heading advisories to the software and requires further development. Passive FAST would not reduce delays at SFO because runway selection is not a problem nor are there concentrated arrival pulses at SFO. Active FAST may have some delay reduction once its development is complete and approved by the FAA for use. A schedule projecting its installation and use is unknown.



Alternative No Action / No Project; Systems Management



Alternative A3

RUNWAY RECONFIGURATION ALTERNATIVES

The FAA and OER propose to include four potential reconfiguration alternatives in the EIR/EIS. These alternatives are known as: Alternative A3, Alternative BX Refined, Alternative BX-2, and Alternative F2.

In addition to the runway reconfigurations, all of these alternatives would include construction of new taxiways. These taxiways would have separations between them and runways that are needed to accommodate existing and projected large aircraft (e.g., Boeing 747-400 and proposed A3XX) without impeding the movements of smaller commercial aircraft (e.g., Boeing 757). Navigational aids, runway safety areas, airfield lighting, and an additional emergency response facility would also be constructed. The airport traffic control tower may also need to be relocated. Other changes to the runways that are specific to each of the reconfiguration alternatives are described below.

Reconfiguration Alternative A3. This alternative includes construction of a new 9,430-foot long runway located 4,300 feet northeast of the existing Runway 28R. This separation is the FAA required minimum between runways for simultaneous independent instrument approaches (i.e., two airplanes approaching an airport at the same time and parallel to each other in limited visibility conditions) using current Airport Surveillance Radar (ASR) technology.

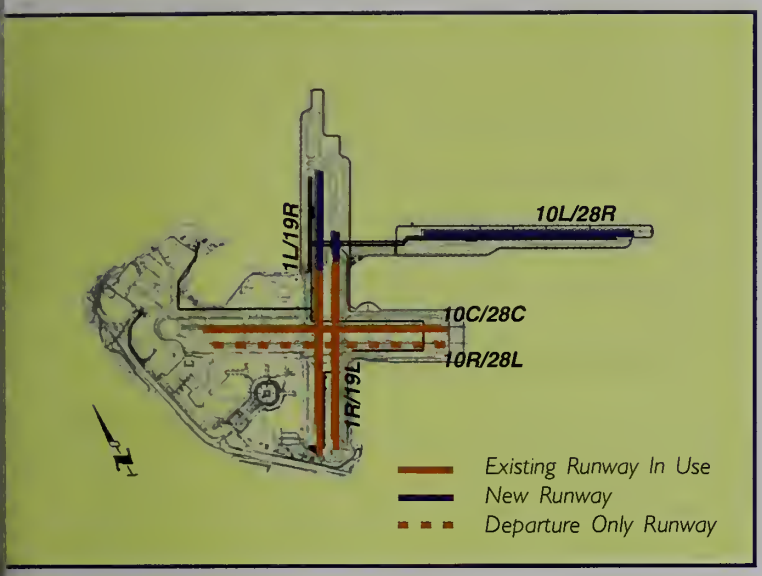
The new 28R runway would accommodate dual simultaneous arrivals in the primary arrival pattern of the airport in all weather conditions. The new runway would also move arriving aircraft further out into the Bay. With this new runway, SFO is proposing to use existing Runway 28L as a departure only runway during certain wind and cloud conditions that occur about 10 percent of the time during the year.

Reconfiguration Alternative BX-2. In addition to the new Runway 28R discussed under Alternative A3, Alternative BX-2 would extend existing Runway 1R 1,000 feet and existing Runway 1L 4,500 feet to the northeast. This would make Runway 1L 11,500 feet long and Runway 1R 9,43(feet long. By lengthening these runways, large aircraft could depart fron Runway 1L, moving more departures from SFO out over the Bay.

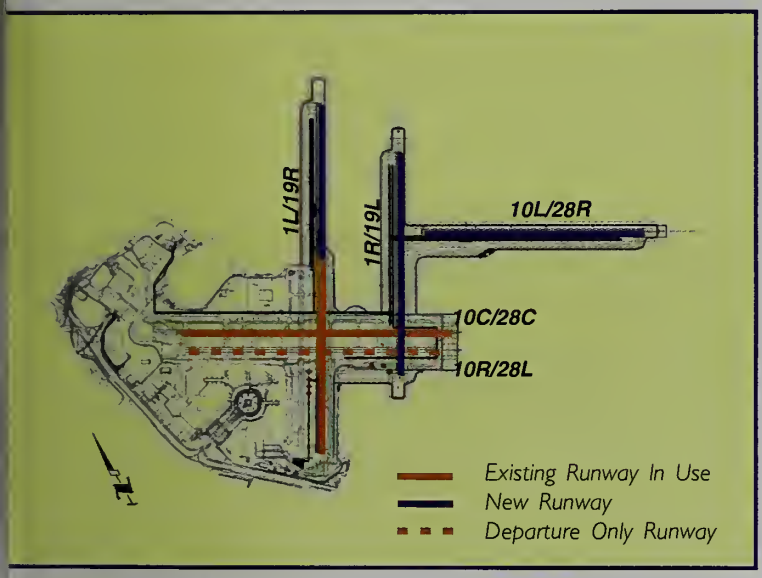
Reconfiguration Alternative BX Refined. In addition to the nev Runway 28R discussed under Alternative A3, Alternative BX Refined woul extend existing Runway 1R 6,450 feet to the northeast and convert existin Runway 1L to a taxiway. A new 9,430-foot long runway would b constructed 3,400 feet northeast of existing Runway 1R. These change would permit dual simultaneous departures on Runways 1R and 1L in th primary air traffic flow pattern, and permit independent arrivals on Runway 19R and 19L during certain wind and cloud conditions.

This alternative would move the departure thresholds on these runway northeast further away from residential areas located west of the airport.

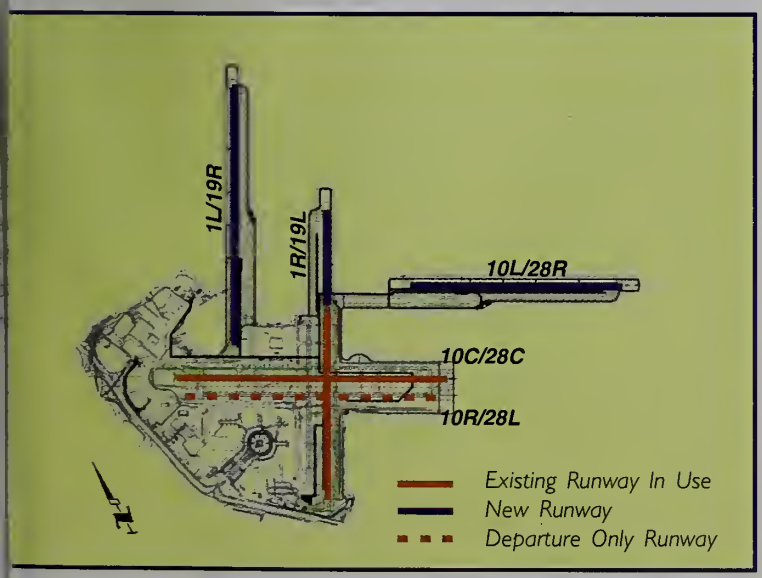
Reconfiguration Alternative F2. This alternative is similar t Reconfiguration Alternative BX Refined except that Alternative F2 include the development of a new north-south runway, Runway 1L/19R, 4,3(feet north of, and not intersecting with, the existing 10/28 runways. Th alternative consists of two runway pairs, a north-south pair and an eas west pair, with each parallel pair separated by 4,300 feet. Since the ne Runway 1L/19R would be located to the north, the resulting airfie configuration has only one pair of intersecting runways. This would provic for almost complete independence of arrivals and departures during th primary arrival pattern of the airport.



Alternative BX-2



Alternative BX Refined



Alternative F2

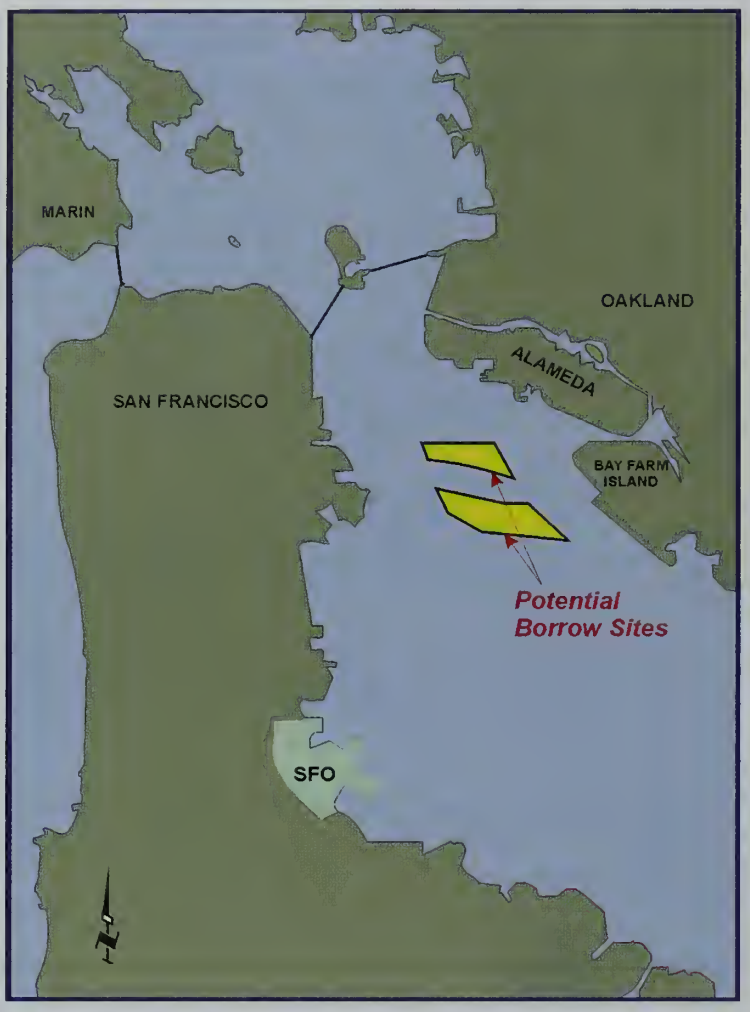
RUNWAY CONSTRUCTION CONCEPTS

The following construction techniques are being considered for each of the reconfiguration alternatives since each would require some construction, or "fill" within the Bay:

- Construction on solid fill contained by structures that are either sloping or straight sided
- Construction on pile supported platform (a range of pile spacings and diameters will be considered)
- Construction on a combination of fill and piles

The analysis contained in the EIR/EIS is intended to capture the potential impacts associated with any of these construction techniques.

A floating platform concept was considered and rejected because the Bay is very shallow (zero to 18 feet) in the vicinity of SFO. A maximum of approximately 38 million cubic yards of material would have to be dredged to increase water depth to a level that would provide the draft needed to float the platforms. Conversely, a maximum of 29 million cubic yards of Young Bay Mud would need to be dredged to create a foundation suitable for building a runway platform or platforms on fill and provide access to the construction site.



East Bay Shoals location

BORROW SITES

If reconfigured runways are built on fill, this material would need to be imported to the site. This fill must consist of sand or coarser material to construct a runway platform that can support aircraft loads and withstand ground shaking from the type of earthquakes that occur in the Bay Area. A maximum of approximately 58 million cubic yards of fill would be required for project construction using an all fill construction technique.

SFO engineering contractors evaluated 94 potential borrow sites from Canada to Mexico and inland to the Rocky Mountains for sources of this fill. Most of these sites were eliminated because the engineering properties of the material were not suitable for use, there were insufficient quantities of material, or transportation logistics were not feasible or practical. Three possible borrow sites were retained for further study and will be analyzed in the EIR/EIS: East Bay Shoals, San Francisco Bar Ship Channel, and the Columbia River.

East Bay Shoals

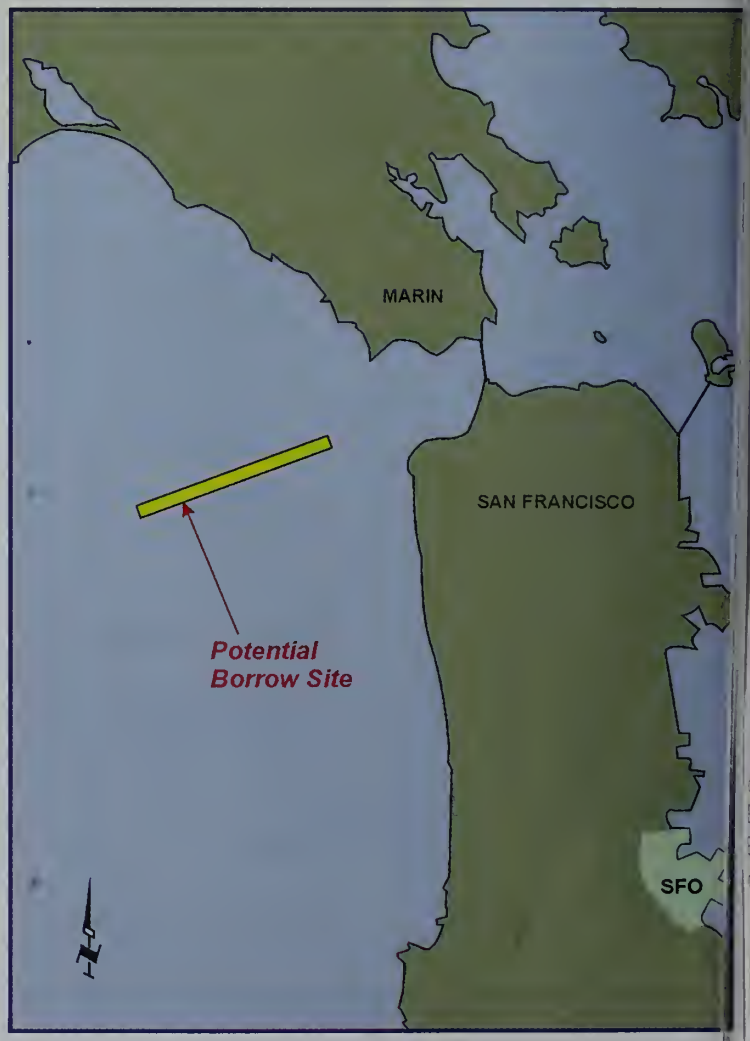
The East Bay Shoals are located offshore of Bay Farm Island approximately seven to eight miles northeast of SFO. This area has large deposits of fine-grained sand overlaid by approximately 10 to 20 feet of Young Bay Mud. This sand would be suitable for construction of runway platforms and the East Bay Shoals contains more than 100 million cubic yards of this material. Approximately 20 million cubic yards of Young Bay Mud would need to be removed to reach the sand.

If this site were used to obtain fill for the project, the mud and underlying sand would be dredged using an electric cutter head dredge. The mud would be placed back into the Bay in an existing hole adjacent to the borrow site that was created when fill material was dredged from this area in the 1950s and 1960s to create Bay Farm Island, or the mud would be shipped by barge to upland sites. The sand would be transported hydraulically through a temporary underwater pipeline from the borrow site to the runway platform construction site. The proximity of this site would allow use of an electric cutter head dredge and hydraulic transport of materials to SFO.

San Francisco Bar Ship Channel

A sand bar is located at the Golden Gate west of the Golden Gate Bridge approximately 22 miles from SFO. A channel has been dredged in this bar by the Corps of Engineers (Corps) to allow ship access to San Francisco Bay. The Corps routinely dredges this channel to keep it open for ships. The sand dredged from the channel is "side-cast" back into the ocean to the south of the channel so that the natural movement of sand down the coast (termed littoral drift) is not disturbed and the beaches along the ocean coast of the San Francisco Peninsula are continuously replenished.

The existing ship channel could be dredged deeper on a one time basis generating over 50 million cubic yards of sand for the project. Because of the distance between the ship channel and SFO, the material could not be transported hydraulically through a pipeline. Instead, it would be transported by ships or barges to a potential rehandling basin or directly to the SFO construction site.



San Francisco Bar Ship Channel location

Columbia River

The Corps maintains a shipping channel in the Columbia River that extends from the bar at the mouth of the river to beyond Portland, Oregon. This channel has to be regularly dredged to maintain waterborne navigation. The Corps is running out of disposal sites for the dredged material, and much of it consists of sand that could be used for fill to construct the reconfigured runways. Conceptual planning for this potential source is not completed, but generally fill material from the Columbia River dredge material disposal islands would be loaded on ships or barges and brought to San Francisco Bay. Currently this source is estimated to generate 16-20 million cubic yards of material.

DISPOSAL SITES

Depending on the alternative and construction method, runway reconfiguration would require dredging a maximum of approximately 29 million cubic yards of Young Bay Mud to provide access to the construction site and create an adequate foundation for the runway or runways. An additional 3 million cubic yards of material may be used to surcharge fill at the construction site and this material would also have to be disposed. As discussed above, proposed use of the East Bay Shoals borrow site could also require the removal of a maximum of 20 million cubic yards of Young Bay Mud at that site to access the underlying sand. Some of these dredged materials would be reused for restoration of upland sites along the margin of the Bay as part of project mitigation. The balance would be deposited at one or more potential disposal sites. The sites being considered for disposal of excess dredge material and surcharge material include the existing San Francisco Deep Ocean Disposal Site (SFDODS), Montezuma Slough, Hamilton Army Airfield, an existing depression adjacent to the potential East Bay Shoals borrow site, and as yet undetermined upland sites.

The Corps, EPA, BCDC, RWQCB, and the State Water Resources Control Board joined together in 1990 to develop a comprehensive Long-Term Management Strategy (LTMS) for Bay Area dredge material. The strategy includes SFDODS, located approximately 50 nautical miles west of San Francisco, that can be used to dispose of up to 4.8 million cubic yards per year of dredge material.

Montezuma Slough is a 2,400-acre site located in Solano County adjacent to the Suisun Marsh approximately 17 miles southeast of Fairfield. The site is now diked grazing land, and is proposed for a project that will combine the commercial disposal of dredge materials with the restoration of tidal wetlands that have subsided since they were diked and drained. The site has the capacity for disposal of 17 million cubic yards of material.

The former Hamilton Airfield is located in Marin County adjacent to the City of Novato. The California State Coastal Conservancy, BCDC, and the Corps plan to restore natural habitats on 950 acres of the airfield. Approximately 10.6 million cubic yards of dredge material would be used to build up land that has subsided in order to create seasonal and tidal wetlands.

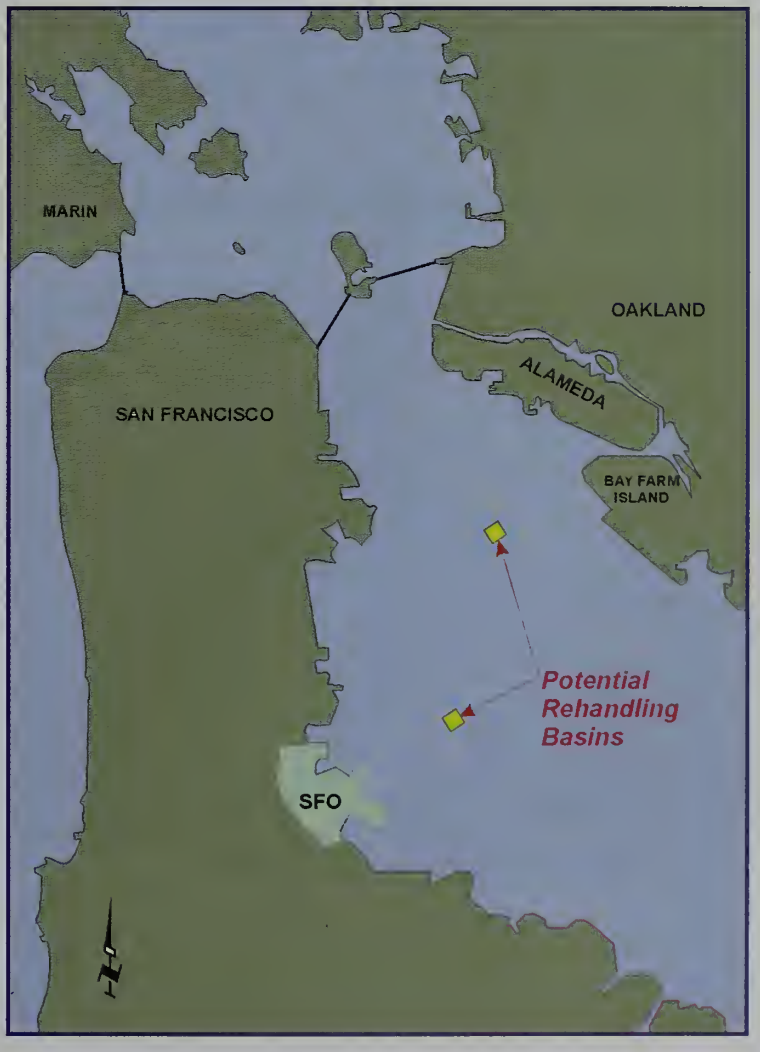
As indicated in the discussion on borrow sites, a large depression was created on the bottom of the Bay as a result of dredging sand to create Bay Farm Island. This depression is located adjacent to the potential East Bay Shoals borrow sites. The depression could be used to dispose of all of the Young Bay Mud that would be dredged for the proposed project.

The suitability of dredge materials for use in habitat mitigation has not yet been determined. Depending on the mitigation sites selected, disposal of dredge materials may be feasible as part of the mitigation strategy. Other upland areas for dredge material disposal may also be identified.

REHANDLING BASINS

A rehandling basin is a temporary storage site on the Bay bottom for fill materials used to construct the project. The Bay in the vicinity of the airport is relatively shallow. The channel may not be deep enough to accommodate some of the ships or barges that would be required to bring fill material from the San Francisco Bar Ship Channel or other sources outside the Bay Area to the SFO construction site. Therefore, fill brought from sites outside the Bay may be temporarily stored at one of two proposed rehandling basins in the Bay. The fill would then be moved hydraulically in a temporary underwater pipeline from the rehandling basin to the construction site. The rehandling basin would be located at either the East Bay Shoals or the San Bruno Shoals. The San Bruno Shoals are located approximately three miles to the east of SFO.

The rehandling basin would be capable of temporarily storing one million cubic yards covering an area of about 60 acres. The basin has to be located in water at least –47 feet mean lower low water (MLLW) in depth to account for the draft of the vessel carrying the fill material and the over depth required for dumping. The basin must also be located in an area where tidal current velocities are relatively low to avoid scouring of the fill material from the basin.



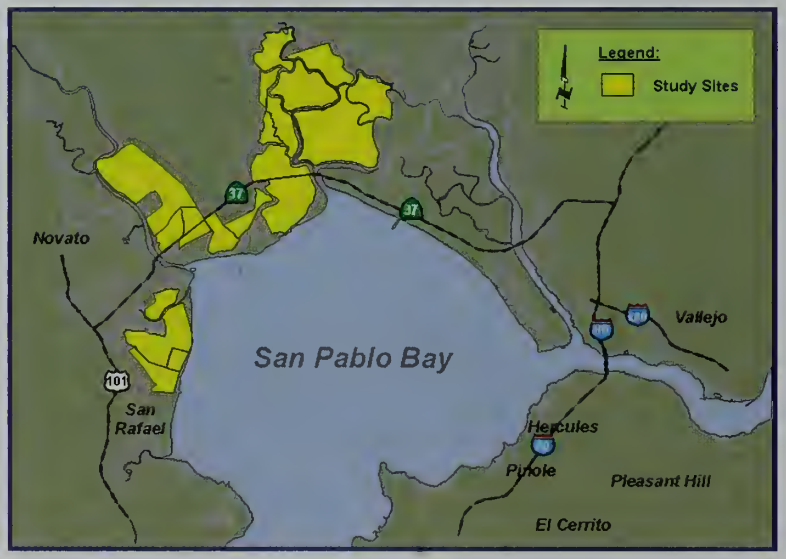
Rehandling Basin locations

FABRICATION SITES

In the event that the runway platform or platforms are constructed on piles, it may be necessary to establish a temporary fabrication yard for deck sections and piles. This yard would cover approximately 40 acres. The materials used to fabricate the deck and piles could be transported to the yard by barge. Therefore, the fabrication site would need waterfront access. SFO is currently evaluating the feasibility of two sites for this yard: Piers 94-96 and Hunters Point Naval Shipyard, both located within San Francisco approximately 8 and 6.5 miles, respectively, north of SFO.

HABITAT MITIGATION PLANNING

The SFO Runway Reconfiguration Program could affect intertidal mudflats and subtidal habitat in San Francisco Bay, and wetlands on SFO property. Environmental studies for the EIR/EIS designed to define the nature and magnitude of the potential impacts of project alternatives are ongoing; therefore, specific needs for habitat mitigation cannot be determined at this time. However, to help facilitate the overall environmental review and permitting process, SFO is identifying and evaluating lands that could be enhanced and/or restored for mitigation of potential project impacts. A total of 138 locations were initially identified as potential mitigation sites. These sites were identified from the restoration recommendations developed by the San Francisco Bay Area Wetlands Ecosystem Goals Project and other sources. The initial evaluation, based on factors such as location relative to the project, location relative to the Bay, existing and planned uses, site evaluation, site size and general site condition, identified 53 sites (45,000 acres) for further study. Readily available information was summarized for these 53 sites. Subsequent evaluation of the 53 sites and consultation with the resource agencies yielded a list of approximately 35 sites (38,000 acres) for focussed study.



Habitat Mitigation Study Sites in the North Bay

Habitat Mitigation Study Sites in the South Bay

TECHNICAL STUDIES UNDERWAY

Environmental studies are being conducted for the following environmental issue areas:

Noise	Land Use	Social Impacts
Environmental Justice	Induced Socioeconomic Impacts	Induced Growth
Air Quality	Hydrology	Water Quality
Geology and Seismicity	Architectural, Archeological, Historic and Cultural Resources	Wetlands
Biological Resources	Threatened/Endangered Species	Floodplains
Recreation Resources	Farmlands	Energy Supply and Natural Resources
Visual Resources and Light and Glare	Solid Waste	Hazardous Materials
Surface Transportation	Wild and Scenic Rivers	Coastal Resources

Future status reports will provide information analyses associated with some of these environmental resources. This newsletter provides a summary of studies being conducted for hydrology, water quality, and biological resources.

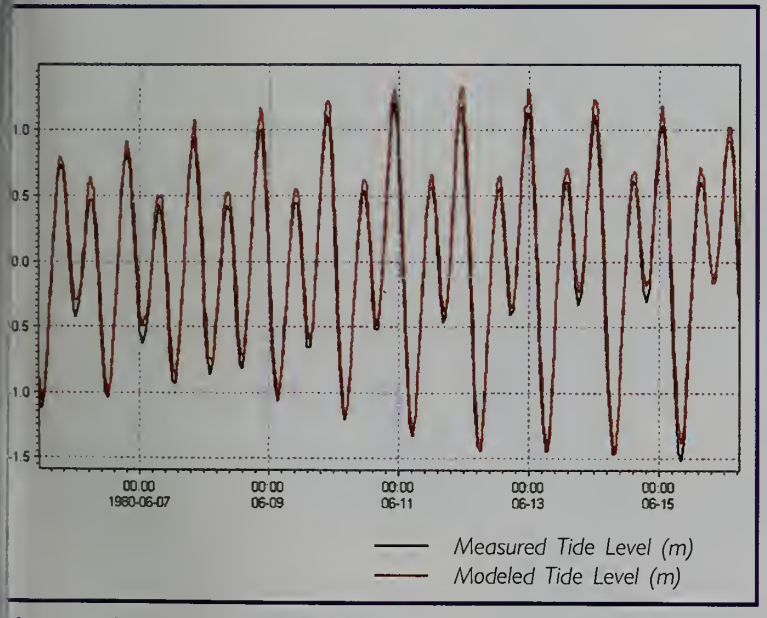
Hydrology

The EIR/EIS will analyze the effects of project alternatives on Bay circulation and sediment transport including erosion and deposition. This type of evaluation requires the use of analytical tools that simulate Bay circulation and sediment movement under existing conditions and can predict changes with each project alternative. Tools considered included the Corps of Engineers physical model of San Francisco Bay located in Sausalito, and a variety of hydrodynamic computer models. The physical model has been useful in studying large-scale circulation, but it does not have the resolution necessary to characterize the localized changes in circulation and sediment transport that are likely to result from the runway reconfiguration alternatives; therefore, it was not selected for use in the environmental studies.

Several hydrodynamic computer models that have been used in San Francisco Bay and are supported by the scientific community were evaluated

r use on this project. The MIKE series of computer models developed the Danish Hydraulics Institute and the TRIM three dimensional model ed by the U.S. Geological Survey and Stanford University were selected r the project. The MIKE model was selected for its ability to address drodynamics, waves, sediment transport, and water quality. This model used throughout the world for hydrological studies and most recently as used to evaluate circulation impacts of the Oakland Bay Bridge Seismic trofit Project. The TRIM model was chosen because of its well cumented use for hydrodynamic modeling in the Bay and its ability to odel circulation in three dimensions.

The MIKE and TRIM models have been calibrated with tide, current, and diment movement measurements made by the U.S. Geological Survey, e National Oceanographic and Atmospheric Administration, Stanford niversity, and other researchers, as well as tide, current, and sediment ata collected near the airport for the EIR/EIS. The models have also en verified with tidal measurements collected this year for the EIR/EIS udies in locations throughout the Bay. As indicated in this comparison, e MIKE model is well calibrated to actual Bay circulation.



Measured and Modeled Tide Levels

Modeling is currently being done on the effects of each runway reconfiguration alternative and the range of construction techniques that may be used to build the runway platforms. The MIKE model combines data that has been collected on Bay circulation, waves, tides, and sediment transport, and estimates how the circulation and sediment transport could change as a result of adding these structures to the Bay. The TRIM model provides the same results in three dimensions.

Hydrologic conditions change from year-to-year depending on the weather. In order to estimate the effects of project alternatives on Bay circulation and sediment transport under a variety of hydrologic conditions, modeling will be conducted for different climatic conditions representing wet year, dry year, average year, and years between wet and average nd dry and average. The climatic conditions selected for this evaluation will be based on the long-term climatic record for the San Francisco Bay Area and Sacramento-San Joaquin River Delta.

Water Quality

The EIR/EIS will analyze the potential effects of project alternatives on the water quality of San Francisco Bay. This analysis will evaluate the potential effects of dredging and filling operations conducted during construction, and water quality changes that may result from changes in Bay circulation and sediment transport caused by the runway reconfiguration alternatives.

The San Francisco Bay Regional Water Quality Control Board has determined that the waters of the Bay are impaired by mercury, copper, nickel, selenium, polychlorinated bi-phenyls (PCBs), dioxin compounds, furan compounds, diazinon, chlordane, dichlorodiphenyltrichloroethane (DDT), and dieldrin. The EIR/EIS analysis will focus on these chemicals. Existing chemical concentrations in Bay waters have been characterized primarily by measurements made under the San Francisco Estuary Regional Monitoring Program for Trace Substances. This program is managed by the San Francisco Estuary Institute. The chemical characteristics of the sediments that may be disturbed by dredging and filling operations have been determined based on 70 sets of sediment samples collected and analyzed for the environmental studies.

A series of computer models, termed the Automated Dredging and Disposal Alternatives Management System (ADDAMS), developed by the Corps of Engineers will be used to evaluate the water quality effects of dredging and filling operations. These models have been used to evaluate dredging impacts on water quality throughout the Bay, including the Port of Oakland's recent –50 Foot Channel Dredging Project and Berths 55-58 Project. The ADDAMS models simulate the chemical interactions between Bay water and sediments suspended in the water during dredging and filling activities. The models estimate changes in water chemistry resulting from these interactions at a distance of 100 to 300 feet from the dredging and filling. The results of this modeling will be used as input to the MIKE water quality computer model to evaluate water quality impacts at greater distances from these activities. The MIKE model will also be used to evaluate water quality changes that may result from changes in circulation and sediment transport caused by the structures that would be placed in the Bay with the runway reconfiguration alternatives.

Biological Resources

The EIR/EIS will evaluate the potential biological effects of habitat loss and disturbance associated with the project alternatives, as well as the potential biological effects of any changes in circulation, sediment transport, and water quality caused by project activities. The biological assessment will focus on wetland and estuary habitats, threatened and endangered species, marine mammals, waterfowl and shorebirds, and recreational and commercial fisheries.

An evaluation of potential effects on biological resources is dependent on an understanding of the resources in the project area. Little biological information exists at the locations in the South Bay (i.e., that portion of San Francisco Bay south of the Oakland-Bay Bridge) that could be affected by project alternatives. Therefore, it has been necessary to conduct baseline biological investigations of the area offshore of SFO, the potential East Bay Shoals borrow area, and the potential San Bruno Shoals rehandling basin site. A one-year fisheries program involving quarterly sampling has been underway since Spring 2000 to determine fish use of the habitats that could be affected by project activities. This program is being supplemented by evaluation of 19 years of fisheries data collected at nearby sites by the CDFG.

Organisms living on and in the Bay bottom, such as clams, mussels, and worms, termed benthic organisms, are important in the food chain of the Bay. Bottom samples have been collected at over 100 locations in the vicinity of the airport, the East Bay Shoals, and the San Bruno Shoals to characterize the benthic communities that could be affected by the project.

A variety of studies have been conducted on the uses of San Francisco Bay by marine mammals, including the location and use of foraging areas and the location of haulouts. This information will be used to evaluate potential project-related effects to marine mammals.

Existing information on waterfowl and shorebirds that use the Bay marshlands near SFO and South Bay waters that could be affected by the project are being supplemented by bird surveys. These surveys have been conducted throughout this year and will be concluded with an aerial survey of waterfowl this winter.

The results of the baseline investigations, analysis of CDFG data, and other published literature will be used to develop an understanding of the functions and values of the South Bay habitats that could be affected by project alternatives. Project effects on the maintenance of fish, marine mammal, waterfowl, shorebird and threatened and endangered species populations will be evaluated by assessing the project-related loss or impairment of habitat functions and values. Biological effects of changes in circulation, sedimentation, and water quality resulting from construction of runway reconfiguration alternatives will also be evaluated based on known responses of affected organisms to water quality, turbidity, and physical conditions.

Measuring a brown smoothhound prior to releasing it back into the water

PEER REVIEW

Based on recommendations by the National Oceanographic and Atmospheric Administration (NOAA) Science Panel and participating agencies, the FAA and OER have convened a panel of independent experts to "peer review" the scope of work and technical studies related to hydrology, water quality, and biological resources. The following experts have agreed to participate:

Hydrology/Sedimentation

- Herman Karl, U.S. Geological Survey
- David Schoellhamer, U.S. Geological Survey
- Ray B. Krone, Ray B. Krone & Associates
- Gerald T. Orlob, Professor Emeritus, University of California, Davis

Water Quality

- A. Russell Flegal, Professor & Chair, Environmental Toxicology, University of California, Santa Cruz
- Bruce Thompson, San Francisco Estuary Institute

Fisheries

- Sally Holbrook, University of California, Santa Barbara
- Andrew Brooks, University of California, Santa Barbara
- Bill Kier, Fisheries Ecologist, Kier Associates

Birds

- Gary Page, Point Reyes Bird Observatory
- Janet T. Hanson, San Francisco Bay Bird Observatory

Marine Mammals

- Sarah G. Allen, Senior Science Advisor, National Park Service, Pt. Reyes National Seashore
- Diane Kopec, University of Maine

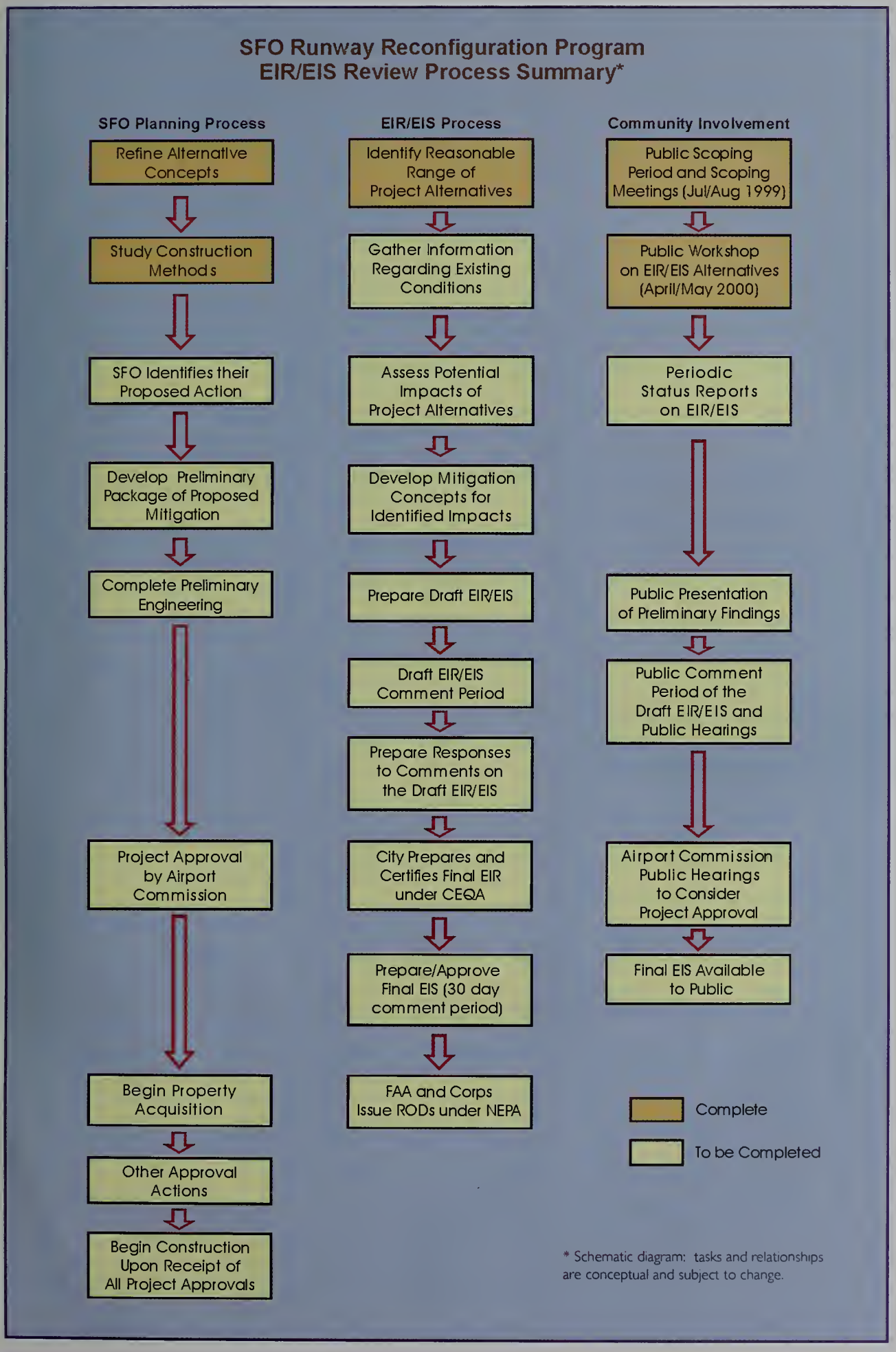
Benthos

- Frederic Nichols, U.S. Geological Survey
- Bruce Thompson, San Francisco Estuary Institute

OER and SFO are in discussion with NOAA and BCDC representativ regarding additional panel participants and oversight. More informati will follow in future newsletters.

EIR/EIS ENVIRONMENTAL REVIEW PROCESS

A flow chart of the EIR/EIS environmental review process for the SF Runway Reconfiguration Program is provided on the next page. T chart is shaded to show the progress that has been made to date in t environmental review process. The next steps in the process are complete the impact assessment of project alternatives, develop propos mitigation, and prepare a Draft EIR/EIS for public review. It is expect that these steps will be completed by this time next year. Tentatively draft EIR/EIS will be distributed for public review and comment at the e of 2001.


SFO Runway Reconfiguration Program
EIR/EIS Review Process Summary*
SFO Planning Process
Refine Alternative Concepts
Study Construction Methods
SFO Identifies their Proposed Action
Develop Preliminary Package of Proposed Mitigation
Complete Preliminary Engineering
Project Approval by Airport Commission
Begin Property Acquisition
Other Approval Actions
Begin Construction Upon Receipt of All Project Approvals
EIR/EIS Process
Identify Reasonable Range of Project Alternatives
Gather Information Regarding Existing Conditions
Assess Potential Impacts of Project Alternatives
Develop Mitigation Concepts for Identified Impacts
Prepare Draft EIR/EIS
Draft EIR/EIS Comment Period
Prepare Responses to Comments on the Draft EIR/EIS
City Prepares and Certifies Final EIR under CEQA
Prepare/Approve Final EIS (30 day comment period)
FAA and Corps Issue RODs under NEPA
Community Involvement
Public Scoping Period and Scoping Meetings (Jul/Aug 1999)
Public Workshop on EIR/EIS Alternatives (April/May 2000)
Periodic Status Reports on EIR/EIS
Public Presentation of Preliminary Findings
Public Comment Period of the Draft EIR/EIS and Public Hearings
Airport Commission Public Hearings to Consider Project Approval
Final EIS Available to Public
Complete
To be Completed
* Schematic diagram: tasks and relationships are conceptual and subject to change.

Written comments and suggestions regarding the EIR/EIS can be sent to the following people:

Camille Garibaldi
Federal Aviation Administration
San Francisco Airports District Office
831 Mitten Road, Room 210
Burlingame, CA 94010
(650) 876-2927
Fax: (650) 876-2733

Hillary Gitelman
City and County of San Francisco Planning Department
Office of Environmental Review
30 Van Ness Avenue, 4th Floor
San Francisco, CA 94103
(415) 558-5977
Fax: (415) 558-5991

San Francisco International Airport
Runway Reconfiguration Program
EIR/EIS Environmental Review Process